

CLAIMS

1. A power supply assembly designed to produce a bias voltage that charges a diaphragm located on an electrolytic or electrostatic speaker driven by an audio amplifier, said assembly comprising:

- a) means for converting an input audio signal from the audio amplifier to a direct current,
- b) means for receiving the direct current and producing a regulated direct-current voltage,
- c) means for converting the regulated direct-current voltage to a high voltage alternating-current,
- d) means for converting the high voltage alternating-current to a regulated high voltage direct-current, and
- e) means for limiting the regulated direct-current high voltage prior to being applied as the output bias voltage to the diaphragm.

2. The assembly as specified in claim 1 wherein said means for converting the audio signal to the direct current comprise a rectifier and filter circuit.

3. The assembly as specified in claim 2 wherein said rectifier comprises a full wave rectifier.

4. The assembly as specified in claim 1 wherein said means for producing the regulated direct current voltage comprises an adjustable regulator.

5. The assembly as specified in claim 4 wherein said adjustable regulator comprises a National Semiconductor Integrated circuit LM117T.

5 6. The assembly as specified in claim 1 wherein said means for converting the regulated direct-current voltage to a high voltage alternating-current comprises a dc to ac inverter.

10 7. The assembly as specified in claim 6 wherein said dc to ac inverter comprises a JKL Components 5V power supply BXA-501 which inverts 5-volts dc to 700 Vrms.

15 8. The assembly as specified in claim 1 wherein said means for converting the high voltage alternating-current to a regulated direct-current high voltage comprise an eight-times multiplier and rectifier circuit.

20 9. The assembly as specified in claim 8 wherein the output of said eight times multiplier and rectifier circuit can be adjusted to provide an output from 1.25 KV to 5.6 KV.

25 10. A power supply assembly designed to produce a bias voltage that charges a diaphragm located on an electrolytic or electrostatic speaker driven by an audio amplifier, said assembly comprising:

- a) a rectifier and filter circuit having means for receiving from the audio amplifier an input audio signal that is rectified and filtered to produce a direct current,

- 5           b) an adjustable regulator circuit having means for receiving the direct current and producing a regulated direct-current voltage that is set to an optimum level,
- c) a dc to ac inverter circuit having means for receiving and converting the regulated direct-current voltage to a high voltage alternating-current,
- 10           d) an eight-times multiplier and rectifier circuit having means for receiving and converting the high voltage alternating-current to a regulated high voltage direct-current, and
- 15           e) a current limiter circuit having means for receiving and limiting the regulated high voltage direct-current prior to being applied as the output bias voltage to the diaphragm.

20           11. The assembly as specified in claim 10 wherein said rectifier and filter circuit means comprises a full-wave rectifier that rectifies the audio signal prior to being filtered by a pair of electrolytic capacitors to produce the direct current.

25           12. The assembly as specified in claim 11 wherein said adjustable regulator circuit means comprises an integrated circuit U1 connected to a pair of potentiometers R1 and R2, wherein the potentiometer R1 is externally adjustable to set the bias voltage at a preselected value, and potentiometer R2 is a trimmer

30           adjustment that is factory set to limit the bias voltage to a maximum level.

13. The assembly as specified in claim 12 wherein the integrated circuit U1 is comprised of a National Semiconductor Inc. LM117T.

5 14. The assembly as specified in claim 13 wherein the bias voltage is set to a voltage between 3000 and 5000 volts d-c.

10 15. The assembly as specified in claim 10 wherein said dc to ac inverter circuit means comprises an integrated circuit U2 and capacitor C12 which function in combination to convert the regulated direct-current voltage to the high voltage alternating-current.

16. The assembly as specified in claim 15 wherein said integrated circuit U2 is comprised of a JKL Components Inc. BXA-501.

15 17. The assembly as specified in claim 10 wherein said eight-times multiplier and rectifier circuit means comprises a series of diodes D5-D12 and capacitors C5-C11 which function in combination to convert the high voltage alternating current to the regulated high  
20 voltage direct current.

18. The assembly as specified in claim 10 wherein said current limiter circuit means comprises a resistor ladder network from where the bias voltage is produced.

25 19. The assembly as specified in claim 18 wherein said resistor ladder network is comprised of current limiting resistors R4, R5, R6 and R7, wherein resistor R4 is connected to a reservoir capacitor C12 to ground and wherefrom resistor R7 the bias voltage is produced.

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